

REMARKS

I. Claim Status

Claim 1 is currently pending and no amendments are made in this paper.

Applicants acknowledge the withdrawal of the rejections made in the Office Action dated December 23, 2009.

II. Rejection under 35 U.S.C. § 103 (a)

1. Wiktorowicz in view of Zanzucchi, Simpson, and Cahill

The Office rejects claim 1 under 35 U.S.C. § 103 (a) over U.S. Patent No. 6,214,191 to Wiktorowicz ("Wiktorowicz") in view of U.S. Patent No. 5,755,942 to Zanzucchi et al. ("Zanzucchi"), U.S. Patent No. 6,143,152 to Simpson et al. ("Simpson"), and European Patent Application Publication No. EP 1 044 716 to Cahill et al. ("Cahill") for the reasons set forth at pages 3-5 of the Office Action. Specifically, the Office acknowledges that "Wiktorowicz does not mention (1) the thickness of the separating coating, and (2) having the system be in the form of a disc device being essentially circular comprising a center, the microchannel structure being arranged around the center." Final Office Action at page 4. The Office then relies on Zanzucchi, Simpson, and Cahill to remedy those deficiencies. In particular, regarding the thickness of the separation coating, the Office alleges that "[t]he coatings disclosed by Cahill may be used in microchannels having a height of only 10 nm. See paragraphs [0010] and [0020]. So Cahill implicitly discloses separating coatings with a thickness between 0.01 and 15 μm ." *Id.* at 4-5. Applicants respectfully disagree with and traverse the rejection for at least the reason that the Office has mischaracterized Cahill's disclosure.

Cahill teaches a device that comprises a channel-like chamber, which "is encased by **two juxtaposed, especially opposite surfaces**, broken into homogenous regions which are coated with molecules possessing a certain conductivity and buffer capacity at a given pH." Cahill, paragraph [0010] (emphasis added). Cahill further states that "[t]he **distance between said surfaces** is typically between 10 and 100 nm, especially between 10 and 500 nm. Extremely small distances between **two planar surfaces** can be maintained by columns of approximately 10 to 30 nm diameter which are created when the surrounded surface is removed by microetching." *Id.* (emphasis added). Similarly, in Cahill, paragraph [0020], "the channel-like chamber has a very small dimension, the distance between the opposite surfaces 12 is especially less than 10 μm and may be as small as 500 nm to 10 nm." *Id.* Accordingly, contrary to the Office's allegation, Cahill merely teaches that the distance between the two opposite surfaces, not a coating, may be as small as 10 nm. Cahill does not implicitly disclose separating coatings. In contrast, the present invention comprises a separating coating with a thickness of between 0.01 and 15 μm carried on a substrate.

Moreover, when considering Cahill as a whole, one of ordinary skill in the art would not have been motivated to drastically modify Cahill's two juxtaposed surfaces filled with buffers in order to arrive at the presently claimed separation system. In fact, that person would have had no reasonable expectation of successfully producing a device without two opposite surfaces for forming a channel-like chambers filled with buffers would not have destroyed Cahill's intended functions. Indeed, Cahill does not provide any teaching or suggestion that would have prompted a skilled artisan to modify Cahill's juxtaposed surfaces in order to arrive at the presently claimed device with a

surface coating. Since Cahill relies on an electrophoretic volume encased by the two juxtaposed, especially opposite surfaces, Cahill only envisages that these two surfaces result in a channel-like chamber. There is no expectation that a system directed to isoelectric focusing of molecules to be separated on a separating coating as presently claimed would achieve the required function.

Zanzucchi or Simpson does not remedy the many deficiencies of Wiktorowicz and Cahill. In fact, the Office relies on Zanzucchi and Simpson solely for its teaching regarding a circular shape device. See Office Action at 5.

For the reasons stated above, the Office has failed to establish a prima facie case of obviousness. Applicants respectfully request the rejection be withdrawn.

2. Liu in view of Zanzucchi, Simpson, and Cahill

The Examiner rejects claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,676,819 to Liu et al. ("Liu"), Zanzucchi, Simpson, and Cahill for the reasons set forth at pages 6-7 of the Office Action. Applicants respectfully traverse the rejection for the reasons set forth below.

Liu is directed to separation systems involving capillary electrophoresis. See Liu col. 1, line 35-44. However, Liu does not teach a coating with a thickness of between 0.01 and 15 μm as recited in claim 1. To remedy this deficiency, the Office again relies on Cahill. Nevertheless, as noted above, Cahill does not teach "a separating coating with a thickness of between 0.01 and 15 μm ." Additionally, neither Liu nor Cahill teaches a "disc shaped device being essentially circular comprising a centre, said microchannel structure being arranged around said centre" as recited in claim 1.

Because Cahill fails to remedy the deficiencies of Liu, the combination of Cahill and Liu does not render the presently claimed device obvious.

The other two secondary references, Simpson and Zanzucchi, also fail to remedy the deficiencies of the combination of Liu and Cahill. In particular, none of the references teach or suggest a separating coating with a thickness of between 0.01 and 15 μm .

Accordingly, the combination of the cited references could not have rendered the presently claimed device obvious, Applicants respectfully request the rejection be withdrawn.

3. Lee in view of Zanzucchi, Simpson, and Cahill

The Examiner rejects claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,974,526 to Lee et al. ("Lee"), Zanzucchi, Simpson, and Cahill for the reasons set forth at pages 8-9 of the Office Action. Applicants respectfully disagree and traverse the rejection for at least the reason that Cahill, Simpson, and Zanzucchi do not remedy the deficiencies of Lee.

Like the other two primary references (Wiktorowicz and Liu), Lee does not teach a "disc shaped device being essentially circular comprising a centre, said microchannel structure being arranged around said centre" as recited in claim 1. Furthermore, nowhere does Lee teach a coating with a thickness of between 0.01 and 15 m as recited in claim 1. As detailed above, Cahill, Zanzucchi, and Simpson do not cure the many deficiencies of Lee at least because none of the cited references teach or suggest a separating coating with a thickness of between 0.01 and 15 μm . Accordingly, the

Office fails to establish a prima facie case of obviousness. Withdrawal of the rejection is respectfully requested.

IV. Response to Requirement for Information Under 37 C.F.R. § 1.105

The Office requires Applicants to provide a copy of the Danish Patent Application No. 2002 00875, which is cited in the specification, page 5, lines 4-22. See Office Action at page 10. Specifically, the Office requires Applicants to provide "a copy of the application if it was ever published, became a patent, or otherwise became publicly available." *Id.* In response, Applicants hereby submit a copy of the Danish Patent Application No. 2002 00875 that was submitted to the European Patent Office ("EPO") as a priority document in European Patent Application No. 07118878.3 to Schmidt et al., and is currently available to the public via the EPO website.

Applicants believe no fee is due with this submission as the Office has indicated that "[t]he fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement." *Id.* at 11. However, if necessary, please charge any additional required fees to our deposit account no. 06-0916.

V. Conclusion

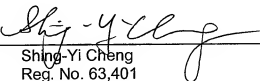
In view of the foregoing remarks, Applicants submit that the claimed invention is not obvious in view of the prior art references cited by the Office. Applicants therefore respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claim.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By: 
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